

A Special Section Commemorating the 30th Anniversary of *Tactics of Scientific Research: Evaluating Experimental Data in Psychology* by Murray Sidman

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The year 1990 marks the 30th anniversary of *Tactics of Scientific Research* by Murray Sidman, one of the most influential books in all of behavioral psychology. To commemorate this anniversary, *The Behavior Analyst* invited comments on *Tactics* from distinguished behavior analysts, and then invited Dr. Sidman to respond. The invitations were open-ended, and as readers will see, the comments engage numerous theoretical, conceptual, and practical matters relevant to behavior analysis. Dr. Sidman's responses deal with all aspects of the comments.

The historical background of *Tactics* is an interesting story. In the summer of 1950, the Social Science Research Council underwrote an experiment in education at Dartmouth College. The Council sponsored a seminar attended by seven men, all young and of approximately the same age, academic rank, and prestige. The men were William K. Estes, Sigmund Koch, Kenneth MacCorquodale, Paul E. Meehl, Conrad G. Mueller, Jr., William N. Schoenfeld, and William S. Verplanck.

Their task was to meet and discuss the status and current problems of learning theory. They eventually decided to critically examine five theories selected in terms of their popularity, their dominant position in the field, their contemporaneity, and their influence on then-current writing and research. The theories were those of Clark L. Hull, Edward C. Tolman, Kurt Lewin, Edwin R. Guthrie, and Burrhus F. Skinner.

Working singly or in pairs, the conferees set about critically analyzing the learning theory of one noted experimental psychologist, dissecting it, exposing it to an unprecedented theoretical review,

and accepting primary responsibility for preparing a final report on the theory. William S. Verplanck, who had worked with Skinner at Indiana while Skinner was chair there during the 1940s, analyzed Skinner's system. The tangible product of this seminar was the publication in 1954 of one of the most famous books in the history of learning theory: *Modern Learning Theory: A Critical Analysis of Five Examples* by William K. Estes, Sigmund Koch, Kenneth MacCorquodale, Paul E. Meehl, Conrad G. Mueller, Jr., William N. Schoenfeld, and William S. Verplanck.

In 1956, the American Psychological Association began publication of *Contemporary Psychology*, a journal of reviews. The lead article in the inaugural issue was about *Modern Learning Theory*. Professor Logan reviewed Koch's analysis of Hull, Professor Bitterman reviewed MacCorquodale and Meehl's analysis of Tolman, Professor Adler reviewed Estes' analysis of Lewin, Professor Guthrie himself reviewed Mueller and Schoenfeld's analysis of his own learning theory, and Professor Sidman reviewed Verplanck's analysis of Skinner.

In 1960 *Contemporary Psychology* was under the able editorship of E. G. Boring. A section called "Books to Come" contained the following notice, amended here slightly for brevity:

More than four years ago Murray Sidman, [discussed] William Verplanck's discussion of B. F. Skinner's unstatisticized and untheoreticized learning theory. . . . That started discussion—of systematic self-corrective replication—among the Skinnerians and the other behavioral experimentalists, so Sidman wrote a paper about it. Written, the paper kept bursting at its seams, so Sidman made it into a monograph, dealing with variability, data, experimental design, various kinds of replication, and lots of other things, still so many too many [sic]

to stay put that Sidman then expanded his exploding idea into a book, which Basic Books will publish, maybe in September, just before it turns into a multi-volume handbook. In March its title was *The Evaluation of Experimental Data*. In April the title had become *Behavioral Research: Its Practice and Evaluation*. Now let him who knows how to extrapolate from two points specify the September title. *No Confidence in Confidence?* (Boring, 1960, p. 221)

The book did appear in 1960, published by Basic Books, under the title of *Tactics of Scientific Research: Evaluating Experimental Data in Psychology*. The original list price was \$7.50. Basic Books let the book itself go out of print in 1985, but Dr. Sidman arranged to have it republished. The book may now be obtained from the Author's Cooperative; PO Box 53; Boston, MA 02119. The cost is now \$18.00, with a modest discount for multiple copies.

Dr. Sidman recalls that he did begin work on *Tactics* as a shorter piece, probably intended for *Science*. He preferred *The Evaluation of Experimental Data in Psychology* as the title of the book length treatment, but that title did not please the editor. Eventually they compromised by making a version of it the subtitle. The *Tactics of Scientific Research* part came from a behavior-storming session in which the editor, Dr. Sidman, and Larry Stoddard participated. In the tradition of all who ever had to meet publication deadlines, Dr. Sidman reports that in the final year of writing he just closed himself off in his office at Walter Reed Army Institute of Research every morning with instructions that if the lab burned down they were to tell him about it when he emerged around noontime, but were not to disturb him before then. Dr. Sidman notes that the final form of the book owes much to Arthur Bachrach, Joseph Brady, Charles Ferster, Richard Herrnstein, David Rioch, and Dr. Sidman's brother, Richard Sidman. Most especially, however, Dr. Sidman acknowledges a debt of gratitude to Fred Keller and William N. Schoenfeld, his teachers at Columbia.

Tactics was reviewed in *Contemporary Psychology* in 1961 by Professor Donald S. Blough of Brown University. Blough (1961) noted that "the book's message, distilled to a single word, is 'control'!

Control individual behavior; make things happen, keep things from happening. Such active control is, for Sidman, the method and the end of lasting research" (p. 279). Blough goes on to cover other important themes of the book: variability, reliability, generality, hypothesis testing, pilot studies, steady states, and transition states, to name only a few.

One of the most controversial aspects of *Tactics* is undoubtedly its advocacy of single subject, as opposed to group statistical (Fisherian), research designs. Blough noted that for Sidman, if a functional relation cannot be obtained from an individual subject, it has no place in the individual science, and that our concern as scientists is typically for functional relations derived from the individual case. As Skinner (1956) had noted a few years earlier, no one goes to the circus to see an average dog jump through a hoop significantly more often than untrained dogs raised under the same circumstances, or to see an elephant demonstrate a principle of behavior.

In closing his review, Blough (1961) stated that,

Tactics of Scientific Research has no counterpart on the psychologist's bookshelf of methodology. Perhaps this is because Sidman's Scientist at Work is very hard to capture in print. Still the book does find its place in a basic tradition of science. Francis Bacon argued for empiricism and active control. Claude Bernard saw a similar vision of research, which the reader may share if he seeks out 'An Introduction to the Study of Experimental Medicine,' nearly 100 years old, but alive again in paperback. Closer home are the writings of B. F. Skinner, to whom Sidman acknowledges a debt that is visible on almost every page. . . . Sidman's book is hard reading. . . . It is narrow in several respects—perhaps 'idealistic' would be more descriptive, for the book refuses to come to terms with what many psychologists regard as their problems. Yet every student should be aware of the attitude toward research that Sidman's work exemplifies. He may well find it clean, refreshing, and powerful, and he will get plenty of antidotes, if such are needed. (p. 280)

Important words indeed, for one of behavioral psychology's most important books.

Personal Background of Dr. Murray Sidman

On a more personal level, Dr. Sidman received his AB from Columbia in 1947,

and his Ph.D, also from Columbia, in 1952. He has held positions at Columbia, Walter Reed Army Institute of Research, University of Virginia Medical School, Harvard Medical School, Massachusetts General Hospital, Eunice Kennedy Shriver Center, and Northeastern University, where he is now emeritus. He has been a Fulbright Scholar at the University of Sao Paulo in Brazil, as well as the recipient of numerous awards and citations.

A classic scholar, Dr. Sidman has been a major contributor to the basic and applied analysis of behavior for nearly 40 years. He has published over 100 scientific papers, concerning avoidance, punishment, anxiety, psychopharmacology, errorless learning, mental retardation, aphasia, memory, stimulus control, concept formation, conditional discrimination, and lately, equivalence relations. His innovative *Neuroanatomy: A Programmed Text* (Sidman & Sidman, 1965) has proved a lifesaver for countless medical students. His most recent book, *Coercion and Its Fallout* (Sidman, 1989), returns to earlier concerns about where

we are going as a species, and what behaviorism has to say about our chances for survival.

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